Center of Excellence in Coastal Ocean Observation and Analysis (COOA)
University of New Hampshire

The goal of this project is to create a monitoring system for the coastal marine ecosystem of the Western Gulf of Maine as part of the Integrated Ocean Observing System. Research conducted by the University of New Hampshire's Coastal Observing Center is laying the foundation for an observing system with the capability to detect, model, and ultimately forecast changes in the ecosystem. Our research will lead to a mechanistic understanding of the factors controlling the ecosystem, and thus will play a role in decisions related to ecosystem-based management.

The system is designed to serve the information needs of fisheries and coastal resource managers, educators, and scientists. The Western Gulf of Maine region is centered at the entrance to the Great Bay Estuary at Portsmouth Harbor, and extends north to the Kennebec River Estuary and south to Cape Cod. The figure directly right illustrates this region. Partners include: the Gulf of Maine Ocean Observing System (GoMOOS), Gulf of Maine Ocean Data Partnership, Martha's Vineyard Coastal Observatory, Northeast Fisheries Science Center, Northeast Center for Ocean Science Education Excellence (COSEE), Gulf of Maine Council, Cooperative Institute for Coastal and Estuarine Technology (CICEET), Regional Association for Research on the Gulf of Maine (RARGOM), Great Bay and Wells National Estuarine Research Reserves, Seacoast Science Center, and the Northeast Consortium.

Benefits from the observing system include:

- Information generated will facilitate ecosystem-based fisheries management
- Effects of climate and human-induced influences on the ecosystem will be understood
- Methods demonstrated can be translated to other coastal ocean observing systems

The system includes three subsystems:

- Data acquisition: A combined effort using remote sensing and *in situ* monitoring with an emphasis on developing automated methods amenable to operational use
- Data management and distribution: WebCOAST is the portal for our data as well as other information including historical archives and inventories of monitoring programs
- Modeling and analysis: Coupled physical-biological models for the region and other products created will benefit scientists, resource managers, teachers and students